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EXAMINER	
FERNANDEZ, KATHERINE L	
ART UNIT	**PAPER NUMBER**
3768	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/751,344	QUISTGAARD ET AL.	
	Examiner	Art Unit	
	Katherine L. Fernandez	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/18/2005 and 11/1/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Information Disclosure Statement

1. The information disclosure statements filed on June 14, 2007 and December 28, 2005 are acknowledged. The information disclosure statements meet the requirements of 37 C.F.R. 1.97 and 1.98 and therefore the references therein have been considered.

Claim Objections

2. Claims 6,13, 23,26, and 35 are objected to because of the following informalities:

Claim 6 recites the limitation " said input commands" in line 1 and "said robotic driver" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "therapy head" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 23 recites the limitation "said motion sensor" in line 8. There is insufficient antecedent basis for this limitation in the claim. Examiner assumes that applicant meant the previously recited position sensor.

Claim 26 recites the limitation "the motion sensor" in line 1. There is insufficient antecedent basis for this limitation in the claim. Examiner assumes that applicant meant the previously recited position sensor.

With regards to claim 35, in line 2, "with in" should be "within".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-11, 14, 16-17,21, 23,25,27-29,31 and 33-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Ng (US Patent No. 5,820,623).

With regards to claims 1-4, Ng discloses an apparatus for carrying a load during a medical procedure (column 1, lines 5-10). The apparatus comprises a base (28), an articulating arm having a distal end and a proximal end secured in a moveable fashion to said base (column 4, lines 39-43), a positional encoder coupled to said arm (106; column 6, lines 38-44;column 8, lines 31-33; column 11, lines 8-11), a receptacle at the distal end for carrying an effector (i.e. medical device) (137; column 15, lines 10-12), means for load balancing said arm when said effector is engaged (column 5, lines 1-29; column 11, lines 51-55; column 12, lines 55-60) and a controller coupled to the positional encoder to track the position of the arm in real time, wherein the controller is a closed loop control device also able to track orientation of the arm in real time and a position tracking device(column 10, lines 39-50; referring to cameras to provide real time orientation and position information in real time; column 11, lines 1-19; referring to positioning, velocity, acceleration, and coordination being controlled using a conventional PID control loop implemented on a microprocessor based multi-axis motion control system). See Figures 1-2 and 8.

With regards to claims 5 and 6, Ng discloses that the means for load balancing is a robotic driver in electronic communication with said positional encoder wherein the robotic driver can position the articulating arm according to a set input commands, wherein the input commands further comprises a series of movement commands for the robotic driver (column 1, lines 5-11; column 11, lines 1-19; column 12, lines 13-32; column 12, lines 48-54, referring to the desired movement or combination of movements being formulated into commands understood by the motion controller).

With regards to claims 7-9, Ng discloses the means for load balancing is a combination of one or more passive force generating devices and one or more active force generating devices (column 9, lines 4-57, referring to the Z movement being counterbalanced by a number of deadweights and the movement of the counterbalance support system (X,Y,Z) is carried out by a swing bracket assembly; column 11, lines 1-19, referring to articulated arm being controlled by a motion controller).

With regards to claim 11, Ng discloses that the means for load balancing is a plurality of springs and counter balancing weights (column 9, lines 4-30, referring to use of dead weights hidden in the main column to counterbalance Z movement and the use of a plunger that is spring loaded that is used for the rotational axis).

With regards to claim 10, Ng discloses that the means for load balancing is one or more cooperative motors (column 5, lines 1-5; column 7, lines 52-56; column 8, lines 28-34; referring to multiple driver assemblies working together, each with a motor).

With regards to claims 14, 23 and 27, Ng discloses that the encoders are in electronic communication with a computer (258), and said computer controls said means for load balancing (column 11, lines 1-20; column 12, lines 48-54).

With regards to claims 16-17 and 36, Ng discloses that the base is anchored to a trolley (i.e. a cart/fixture).

With regards to claim 21, Ng discloses that encoder(s) are one or more position sensors (column 11, lines 7-11).

With regards to claim 25, as can be seen from Figure 2, the robotic articulating arm has a plurality of arm segments (17-19, 84, 306) separated by a joint between each said arm segment (Figure 2).

With regards to claim 28, Ng discloses that the controller is a computer utilizing a robotic software controller (column 12, lines 33-54).

With regards to claim 29, Ng discloses that the medical device may consist of an ultrasound probe (column 13, lines 33-47).

With regards to claim 31, Ng discloses that the apparatus further comprises a joint (164) between said base (28) and said base end, so that the base end may be positioned relative to said base (column 8, line 63 – column 9, line 3).

With regards to claim 33, the robotic articulating arm is moveable relative to said base (column 8, line 63-column 9, line 3, referring to a counter-balance support system that provides 3 degrees of linear freedom (X,Y,Z) plus a rotational swing (R).

With regards to claim 34, as can be seen from Figure 2, the patient lies on an examination table when the apparatus is in use (See Figure 2).

With regards to claim 35, the robotic arm may be manually moved within a programmed limited space, and the articulating elements prevent any manual movement outside the pre-programmed field of movement (column 12, lines 55-60).

5. Claims 38-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Eshel et al. (US Pub No. 2003/0083536).

Eshel et al. disclose a method of controlling an articulating arm through at least one force generating device comprising the steps of (a) determining a desired position for said articulating arm (pg. 5, paragraph [0094], referring to operator initially drawing outline on a patients body); (b) converting said desired position to a plurality of component coordinates (pg. 5, paragraph [0096]), referring to the computerized tracking functionality computing coordinates of target volumes for lipolysis treatment); (c) calculating a first time position coordinate for each of said plurality of components (pg. 5, paragraph [0096]); (d) transmitting a force changing command to said force generating device (pg. 5, paragraph [0098]-[0099], referring to positioning assembly repositioning transducer to overlie the selected target volume); (e) calculating a subsequent time position coordinate for each said plurality of components (pg. 5, paragraph [0098], referring to continuously maintaining registration of outline with respect to outline representation); (f) comparing said subsequent time position coordinate to said desired position (pg. 5, paragraph [0100], referring to following repositioning of transducer, the lipolysis control computer confirms accurate positioning of transducer with respect to the selected target volume); and (g) adjusting said force changing commands until said articulating arm achieves said desired position (pg. 5,

paragraph [0099]-[0100], referring to computing the required repositioning of transducer and confirming accurate positioning).

With regards to claim 39, adjusting said force changing commands occurs continuously (pg. 5, paragraph [0098], referring to continuously maintaining registration of outline with respect to outline representation).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 12-13 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng in view of Eshel et al. (US Pub No. 2003/0083536).

Ng discloses that their system can be used for surgical, therapeutic, or diagnostic procedures, which includes high intensity ultrasound (column 2, lines 5-10; column 14, lines 38-48). However, they do not specifically disclose that the medical procedure is a procedure for the reduction in adipose tissue, nor do they disclose that their system includes a high intensity focused ultrasound transducer (i.e. therapeutic transducer). Eshel et al. disclose a method and system for lysing adipose tissue which includes the steps of directing focused ultrasonic energy at a target volume in a region of a body containing adipose tissue (pg. 1, paragraphs [0007]-[0009]). A high intensity focused

ultrasound transducer is included in their system (pg. 3, paragraph [0060]). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have the system of Ng perform a procedure for the reduction in adipose tissue and include a therapy head that includes a high intensity focused ultrasound transducer. The motivation for doing so would have been to selectively lyse adipose tissue, as taught by Eshel et al. (pg. 1, paragraphs [0007]-[0009]).

8. Claims 15, 19-20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng.

With regards to claim 15, Ng does not specifically disclose that their apparatus further comprises a feather touch. However, they do disclose that their apparatus can be used in areas that would require a feather touch, such as the prostate gland, the bladder and the womb (column 14, lines 38-42). Further, they disclose that that their articulated arm is designed to facilitate more precise and accurate medical interventions (column 14, lines 44-47). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have the apparatus of Ng have a feather touch. The motivation for doing so would have been to avoid causing damage to organs of the body.

With regards to claims 19-20, Ng discloses position sensors that provides both positional and velocity information (column 11, lines 8-11). However, they do not specifically disclose that the encoders are rotational encoders or linear encoders. They do disclose that the articulating arm has 3 degrees of linear freedom (X,Y,Z) as well as a rotational swing (R) (column 8, line 63 – column 9, line 3). At the time of the

invention, it would have been obvious to one of ordinary skill in the art to have the encoders be rotational or linear encoders. The motivation for doing so would have been accurately determine the position of the arm and thus safely and effectively perform the medical procedure.

With regards to claim 26, Ng discloses a position sensor that provides both positional and velocity information about the apparatus (column 11, lines 8-11). However, they do not specifically disclose that the position sensor tracks the position of each joint of the articulating arm in addition to the procedural end. However, at the time of the invention, it would have been obvious to one of ordinary skill in the art to do so. The motivation for doing so would have been to provide accurate information about the location of the arm in order to safely and effectively perform the medical procedure.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ng in view of Hetz et al. (US Patent No. 4,291,578).

Ng meets the limitations of claim 1. However, they do not disclose that the base is anchored to an examination table. Hetz et al. discloses an apparatus for ultrasonic scanning of objects which comprises of an articulated arm (column 1, lines 7-14). They further disclose that the base of their apparatus is coupled to the object support (patient couch) (column 1, lines 15-25; also see Figures 1-2). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have the apparatus of Ng have the base anchored to an examination table. The motivation for doing so would have been to the apparatus simpler to handle and to carry out the rotation of the

apparatus without the need of an assistant, as taught by Hetz et al (column 1, lines 28-37).

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ng in view of Taylor et al. (US Patent No. 5,695,500).

Ng meets the limitations of claim 1. However, they do not disclose that their apparatus further comprises a motion sensor. Taylor et al. disclose a system and method for positioning, moving and locating surgical instruments for performing surgery on a patient (column 1, lines 11-14). They disclose that their instrument includes an optical position sensor system that is adapted to use beacons to sense the relative motion of various items (column 17, lines 3-8). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have included a motion sensor in the system of Ng. The motivation for doing so would have been to facilitate tracking of the surgical instruments, as taught by Taylor et al. (column 19, lines 52-54).

11. Claims 24 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng in view of Tamura et al (US Patent No. 4,501,557). Ng does not disclose that the base is anchored to a wall surface. Tamura et al. disclose a balancing device for vertically moving a dental arm assembly (column 1, lines 6-8). They disclose that their balancing device is connected, movably in the horizontal direction, to the end of a hanger arm, which is installed, movably in the horizontal direction, on a wall surface (column 3, lines 6-11). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have the base anchored to a wall surface. The motivation

for doing so would have been to provide the base with a stable surface from which the arm can move, as taught by Tamura et al. (column 3, lines 8-11).

12. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ng in view of Ryaby et al. (US Patent No. 5,626,554).

Ng does not disclose that the articulating arm is a telescoping arm. Ryaby et al. discloses therapeutically treating and/or evaluating muscoskeletal injuries by ultrasound (column 1, lines 5-7). They disclose that many ultrasonic delivery system have a telescoping portion with the operative surface exposed at the end face (column 2, lines 34-39). At the time of the invention, it would have been obvious to one of ordinary skill in the art to have the articulating arm be a telescoping arm. The motivation for doing so would have been to be able to maneuver the arm to be positioned adjacent the skin, as taught by Ryaby et al. (column 2, lines 34-39).

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine L. Fernandez whose telephone number is (571)272-1957. The examiner can normally be reached on 8:30-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni M. Mantis-Mercader can be reached on (571)272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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